I. AMENDMENT

The following listing of claims replaces all previous listings or versions of claims in the application:

Listing of Claims:

1-51. (Canceled)

52. (Currently Amended) A method of imaging a site within a subject comprising the steps of:

a) administering to the subject an effective amount of a composition comprising a radionuclide-labeled bis-aminoethanethiol (BAT) dicarboxylic acid-targeting ligand conjugate, wherein the targeting ligand of the conjugate is a folate receptor targeting ligand, an agent that mimics glucose, annexin V, colchicine, glutamate pentapeptide, or a tumor hypoxia targeting ligand selected from the group consisting of nitroimidazole, mitomycin, and metronidazole; and

b) detecting a radioactive signal from the site by emission tomography.

53. (Previously Presented) The method of claim 52, wherein the emission tomography is positron emission tomography (PET).

54. (Previously Presented) The method of claim 52, wherein the emission tomography is single photon emission computed tomography (SPECT).

55. (Canceled)

56. (Previously Presented) The method of claim 52, wherein the subject is a mammal.

57. (Previously Presented) The method of claim 52, wherein the subject is a human.

58. (Previously Presented) The method of claim 52, wherein the site is in the breast, ovary, prostate, endometrium, lung, brain, or liver.

59. (Previously Presented) The method of claim 52, wherein the site is an area of inflammation.

60. (Previously Presented) The method of claim 59, wherein the area of inflammation is an infection.

61. (Previously Presented) The method of claim 52, wherein the site is a tumor.

62. (Previously Presented) The method of claim 61, wherein the tumor is breast cancer, lung cancer, prostate cancer, ovarian cancer, brain cancer, liver cancer, cervical cancer, colon cancer, renal cancer, skin cancer, head & neck cancer, bone cancer, esophageal cancer, bladder cancer, uterine cancer, lymphatic cancer, stomach cancer, pancreatic cancer, testicular cancer, lymphoma, multiple myeloma, folate-positive cancer, or estrogen-positive cancer.

63. (Previously Presented) The method of claim 52, wherein the radioactive signal from the administered composition localizes at the site.

64. (Previously Presented) The method of claim 52, wherein the radionuclide is ^{68}Ga, ^{62}Cu, or ^{64}Cu.

65. (Previously Presented) The method of claim 52, wherein the radionuclide-labeled bis-aminoethanethiol (BAT)-targeting ligand conjugate is a radionuclide-labeled ethylenedicysteine-targeting ligand conjugate.

66. (Currently Amended) The method of claim 52, wherein the targeting ligand is ~~an anticancer agent, DNA topoisomerase inhibitor, antimetabolite, tumor marker, folate receptor targeting ligand, tumor apoptotic cell targeting ligand, tumor hypoxia targeting ligand, DNA intercalator, receptor marker, peptide, nucleotide, organ specific ligand, antibiotic, antifungal, antibody, glutamate pentapeptide, or an agent that mimics glucose~~annexin V.

67. (Currently Amended) The method of claim [[66]]52, wherein the targeting ligand is ~~an anticancer agent~~colchicine.

68. (Canceled)

69. (Currently Amended) The method of claim [[66]]52, wherein the targeting ligand is ~~a tumor marker~~nitroimidazole.

70. (Currently Amended) The method of claim [[69]]52, wherein the ~~tumor marker~~targeting ligand is ~~PSA, ER, PR, CA-125, CA-199, CEA-AFP, interferons, BRCA1, HER-2/neu, cytoxan, p53, endostatin, or a monoclonal antibody~~mitomycin.

71. (Currently Amended) The method of claim [[66]]52, wherein the targeting ligand is a folate receptor targeting ligand.

72. (Currently Amended) The method of claim [[71]]52, wherein the targeting ligand is a folate receptor targeting ligand selected from the group consisting of[[is]] folate, methotrexate, [[or]]and tomudex.

73. (Canceled)

74. (Currently Amended) The method of claim [[73]]52, wherein the targeting ligand is ~~annexin V, colchicine, nitroimidazole, mitomycin, or~~ metronidazole.

75. (Currently Amended) The method of claim [[66]]52, wherein the targeting ligand is glutamate pentapeptide.

76. (Currently Amended) The method of claim [[66]]52, wherein the targeting ligand is an agent that mimics glucose.

77. (Previously Presented) The method of claim 76, wherein the agent that mimics glucose is glucosamine, deoxyglucose, neomycin, kanamycin, gentamicin, paromycin, amikacin, tobramycin, netilmicin, ribostamycin, sisomicin, micromicin, lividomycin, dibekacin, isepamicin, astromicin, or an aminoglycoside.

78. (Previously Presented) The method of claim 77, wherein the agent that mimics glucose is glucosamine or deoxyglucose.

79-80. (Canceled)

81. (Currently Amended) A~~The~~ method of ~~claim 79~~imaging a site within a subject comprising the steps of:

a) administering to the subject an effective amount of a composition comprising a radionuclide-labeled bis-aminoethanethiol (BAT) dicarboxylic acid-targeting ligand conjugate, wherein the radionuclide-labeled bis-aminoethanethiol (BAT) dicarboxylic acid-targeting ligand conjugate further comprises a linker conjugating the BAT dicarboxylic acid to the targeting ligand; and

b) detecting a radioactive signal from the site by emission tomography,

wherein said linker is glutamate peptide or poly-glutamic acid.

82. (Currently Amended) A~~The~~ method of ~~claim 80~~imaging a site within a subject comprising the steps of:

a) administering to the subject an effective amount of a composition comprising a radionuclide-labeled bis-aminoethanethiol (BAT) dicarboxylic acid-targeting ligand conjugate, wherein the radionuclide-labeled bis-aminoethanethiol (BAT) dicarboxylic acid-targeting ligand conjugate further comprises a linker conjugating the BAT dicarboxylic acid to the targeting ligand; and

b) detecting a radioactive signal from the site by emission tomography, wherein the linker comprises a water soluble peptide, glutamic acid, aspartic acid, bromo

ethylacetate, ethylene diamine, or lysine, and wherein the targeting ligand is estradiol, topotecan, paclitaxel, raloxifen, etoposide, doxorubricin, mitomycin C, endostatin, annexin V, LHRH, octreotide, VIP, methotrexate, or folic acid.